

CONFIDENTIAL

TIRC Grant #85

Progress Report #2

Dr. Sam Sorof

March 1956

The Institute for Cancer Research
and Lankenau Hospital Research Inst.

"Chemical and Physical Studies on the Tissue
Proteins Involved in Chemical Carcinogenesis"

Partial Purification and Preliminary Analyses of Certain Soluble Azoproteins from Livers of Rats Fed 3'-Methyl-4-dimethylaminoazobenzene. Sam Sorof, Marilyn G. Ott, and Emily M. Young.

Previous studies appear to indicate the involvement of the soluble liver "h" azoproteins in aminoazo dye hepatocarcinogenesis in the rat through the hypothetical "protein deletion" mechanism of Miller and Miller (Adv. in Cancer Research 1:339, 1953). Adult Lankenau-Wistar rats of both sexes were fed ad libitum for 18-21 days diet #3 (Miller and Miller) including 0.057% 3'-methyl-4-dimethylaminoazobenzene and 1.0 mg. riboflavin/kg. Control rats were fed the same diet without dye. Using free boundary electrophoresis with a convection barrier (J. Am. Chem. Soc. 76:4740, 1954), 100-300 mg. quantities of the following two fractions have been isolated in each separation from six resolved "h" sub-components: (1) 100% "h₃" (2) three "h" sub-classes: 57% "h₃"; 30% "slow h₂"; 13% "middle h₂". These represent 7.3%, 3.4% and 3.5%, respectively, of the soluble liver proteins of the dye fed rats. The "h₃" proteins contain 14% of all the soluble bound dyes. Assuming the absence of bound dyes with the minor constituent ("middle h₂") in Fraction 2, 42% of all the soluble bound dyes are with the same sub-class ("slow h₂") which greatly increases during azo dye preneoplasia (Proc. Am. Assoc. Cancer Research, in press, 1956). The "h" proteins of Fraction 2 from control or dye fed rats do not contain significant amounts of non-dialyzable nucleic acids or riboflavin. This is of interest considering the roles of nucleic acids in growth and the inhibitory effect of dietary riboflavin on certain azo carcinogens.

Reprinted from Fed. Proceed., 1956

1003541213